

ABSTRACT OF THE DISCLOSURE

Improvements in compositions, composites, and methods for construction of weather resistant and insulated roofs are disclosed. The type of roofs to which these improvements apply are typically known as built up roofs. Built up roofs feature a substrate as an inner layer normally adjacent to and attached to the exterior of an unimproved roof surface. This invention is directed to improved foamed resin substrates used in such roof constructions. Alternating layers of hot asphalt and roofing felt are applied to the foam substrate layer. In prior art roofs, the foamed resin substrates could not withstand the direct application of hot molten asphalt to the foam surface which necessitated use of an isolation layer between the foamed resin layer and the first asphalt layer. This invention discloses compositions, composites, and methods involving direct application of hot asphalt to specially formulated and thermally resistant polyester foam resin substrate layers at temperatures up to 500 °F. These improved compositions, composites, and methods not only reduce labor and material costs but also produce roofs that score higher on standard tests used for rating such roofing constructions.